Popular Medical Concepts in Jamaica and Their Impact on Drug Use

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Universally, popular medical concepts form the basis of lay understanding of health, disease and cure. In Jamaica these concepts first developed in association with traditional herbal medicine. Now they are applied to the most common forms of primary care: over-the-counter and prescribed drugs. Research findings suggest that where there is disagreement between popular and professional medical models, as is the case in Jamaica, the effect of popular concepts is to increase self-medication and reduce adherence to prescribed medical regimens. To ameliorate this situation and the attendant potential risks for drug consumers, methods for providing needed drug information and improving physician-patient communication are suggested. These suggestions apply not only to Jamaicans living in Jamaica and the United States, but also to members of any group whose ethnomedical concepts differ from the biomedical training of physicians.

Universally, lay—or popular—concepts of disease etiology and therapy form the basis of most people's understanding of health, illness and the curing of disease. These concepts address and attempt to explain several important aspects of illness:

- etiology,
- time and mode of onset of symptoms,
- pathophysiology,
- course of sickness and
- treatment.

In the extent to which they attempt to answer some or all of these concerns, conceptual systems differ considerably cross-culturally.[1]

Underlying popular medical concepts is a logic that directs reasoning along certain lines. An example of this is believing (as in American popular medicine) that the relationship between symptoms and treatment should be allopathic; that is, that medicines should produce effects different from those of the disease being treated. Popular medical concepts are also adaptable, and both pliant enough to cover a wide range of experiences and imprecise enough not to be refuted by specific instances that appear to contradict their logic. In this respect their character differs significantly from the more formalized tenets of scientific medical knowledge.[1]

This article will focus on the impact of popular medical concepts on modern drug therapy, using ethnographic data gathered in Jamaica. Fifty years ago most Jamaicans used traditional plant medicines for primary medical care. Today most of the population gets its primary medical care at health centers and community pharmacies. As a result popular medical concepts that developed in relation to traditional substances are now applied to drugs prescribed by physicians and to over-the-counter (OTC) drugs purchased for self-medication. The patterns of prescription and OTC drug use that have resulted from this major change suggest that in Jamaica popular concepts have the effect of discouraging adherence to prescribed drug regimens and encouraging self-treatment with drugs. In the process consumers run the risk of drug misuse, drug-drug interactions and neglect of serious medical conditions.

The findings reported for Jamaica also apply to the estimated 254,000 Jamaicans living in the United States. The elderly and recent adult immigrants are

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particularly likely to subscribe to popular concepts and to weigh therapeutic decisions within their framework. Jamaicans born in the United States, or who have received much of their education here, are less likely to express these concepts openly but they may follow some of the practices associated with them at home. Even second generation Jamaican-Americans may subscribe to some traditional medical concepts, especially those which do not conflict significantly with scientific medical practices. Physicians working with members of other Caribbean immigrant populations such as Haitians and Bahamians, whose medical conceptual systems closely resemble those of Jamaicans, can expect similar approaches to defining health and illness and similar responses in evaluating medical treatment.

At a broader level, similarities between behavior observed in Jamaica and behavior reported in the United States and other settings point to general patterns which emerge when traditional or popular medical standards are used in the context of modern biomedical technology to evaluate symptoms and regulate utilization of mainstream medical services and adherence to treatment regimens. Examination of these patterns shows a need for better communication generally between physicians and patients and in particular for greater awareness of ethnomedical concepts among physicians working with immigrant and minority patients. The article concludes by discussing how improved communication of information can be used to achieve safe and effective drug use.

Jamaica

Jamaica is the third largest island in the Greater Antilles and part of the chain of islands forming the northern limit of the Caribbean Sea. Located about 90 miles south of Cuba and 600 miles south of Miami, it is approximately 140 miles long and 50 miles wide. Its area is 4,207 square miles, making it about the same size as the state of Connecticut. In 1979 the population was estimated at 2.2 million, of whom 70% were urban, living in the capital, Kingston, and other towns, and 30% were rural.[2,3] Of the population 90% is classified as African (that is, of West African descent), 6% as Afro-European and the remaining 4% as East Indian, Afro-East Indian, Chinese, Afro-Chinese and European.[3]

Originally Jamaica was inhabited by Arawak Indians, but by the time the British captured the island from Spain in 1655 the Arawaks had been completely killed off and Jamaica was inhabited only by a few thousand Spaniards and a few hundred West African slaves. From 1655 until the emancipation of the slaves in 1838 Jamaica's development was dominated by sugar and the plantation system. With the growth of the plantation economy in the 17th century the population changed rapidly. By 1673 blacks, who had been imported in massive numbers to work on the sugar plantations, began to outnumber whites.[4] From that time onward Afro-Americans of West African descent made up most of the Jamaican population.

TABLE 1.—*Ten Chief Causes of Mortality in Jamaica, All Ages, 1977**

Disease	*Deaths Per 100,000 Population*
Cerebrovascular disease	93
Heart disease	90
Malignant neoplasms	77
Hypertensive disease	35
Influenza and pneumonia	32
Diabetes mellitus	26
Enteritis	24
Accidents	17
Perinatal mortality	15
Bronchitis, emphysema, asthma	12

Source: Jamaica National Planning Agency: Economic and Social Survey (1979). Kingston, Jamaica, The Government Printer, 1980

*"Ill-defined" causes excluded (rate = 57/100,000).

With emancipation (1838) the black slave majority became an independent self-sufficient peasantry whose economic base was the production of small-scale agricultural crops for both export and domestic use. Today agriculture is still an important part of the Jamaican economy, but it is no longer its central feature. Bauxite mining, tourism and light industry have also become significant. Compared with other developing nations the standard of living is relatively high, with per capita income estimated at US$1,304.[5] Unemployment is also high, however, and there are enormous gaps between the life-styles of the rich and the poor. Some 26% of the labor force was unemployed in 1981, with numbers reaching 42% for young people and 39% for women of all ages.[6] Emigration is also high, almost half a million people having left Jamaica permanently in the last 20 years to settle in Canada, Britain and the United States.

The Jamaican population is strongly divided by social class. The society can be described as a pyramid with a broad base of unemployed people, poorly paid workers and small farmers and a small apex comprised of the wealthy elite. Income distribution is highly uneven as employment figures suggest, with 5% of the population earning 30% of the income in 1978 and 20% of the population earning 2.2% of the income.[2]

Mortality and Morbidity

In 1977 (most recent statistics available) the chief causes of death in Jamaica for all ages were chronic diseases, accidents, respiratory diseases, causes related to perinatal mortality and enteritis (Table 1). The overall death rate was 6.4 per 1,000 population while the infant mortality rate was 18.5 per 1,000 live births. Life expectancy for the 1980s is projected at 71.5 years. Although the early neonatal death rate was probably underreported, infant mortality on the whole dropped appreciably during the 1970s, from a high of 30.9 per 1,000 in 1972 to its present level which is well below average for the Caribbean and Latin America. During the decade chronic disease and respiratory disease death rates increased, as did motor vehicle

accident death rates (also probably underreported). Death rates from enteritis and malnutrition declined.[6]

Among infants and small children the most frequent cause of mortality is malnutrition, while in young adults accidents account for most morbidity and mortality. In the population over age 45 chronic disorders such as vascular disease, diabetes and cancer, along with pneumonia, are the chief causes of death.

Morbidity rates for communicable diseases have dropped in recent years as a result of immunization and vaccination programs, but the following diseases continue to be major causes of morbidity: dengue fever, venereal diseases, tuberculosis of the lungs, influenza, pneumonia, measles, tetanus and typhoid.[6,7] The incidence of venereal diseases is especially high in the sexually active 15 to 45 age group. In general, with the eradication of yaws in the 1950s and malaria in the 1960s and the successful lowering of the rate of hookworm infestation in the 1920s, the health problems of Jamaica have come to resemble more closely those of the United States and Europe than those of other developing countries.[8]

Popular Concepts of Health, Disease and Cure

Popular medical concepts tend to be identified with the Jamaican lower class because this group expresses them most explicitly but to some degree they are held by virtually all Jamaicans. They are a mixture of West African philosophy, Hippocratic humoral concepts and the concept of "germs," with germ theory appearing to be the weakest element. They are used to explain the cause of illness, to determine the most appropriate treatment and to evaluate the effectiveness of past or present therapies.

Health

Health for most Jamaicans is defined by specific physical signs, namely having a good appetite, feeling strong and energetic, being "fit" rather than *maigre* (thin or scrawny) and being able to accomplish daily activities without pain or other physical difficulty. In both men and women health has sexual as well as physical connotations. A healthy man is not only physically strong but he is virile, as shown by his ability to drink heavily, to be sexually active and to father many children. A healthy woman is strong, well-built and fertile. Health in children is associated with activity rather than strength, and with freedom from coughs, colds, diarrhea and other overt signs of disease.

Absence of one of the signs of health is not necessarily an indication of illness—for example, people can "feel low" and listless without actually being considered sick—but it is a signal that unless preventive action is taken illness may eventually result. Bleeding and pain are two signs that are invariably interpreted as indications of disease.

Concepts of Disease Etiology

Most illnesses are believed to be caused by (1) "cold," (2) "gas," or "wind," (3) "heat," (4) "bile," (5) blood imbalances or (6) germs. Etiological explanations involving heat, cold, bile and gas/wind are applied mainly to symptoms in which there is a feeling of pain, heat or chill or there is a discharge; those involving imbalances of the blood are applied to internal conditions and changes in the skin; those involving germs are applied primarily, but not exclusively, to venereal diseases. These associations and their manifestations in specific symptoms are shown in Table 2.

- *Cold* is the result of experiencing a sudden change in temperature, "catching a first draft" or getting wet. Its symptoms are discharges, pus, phlegm and mucus in any part of the body. To prevent "cold" people avoid going outdoors when it is raining, keep their heads covered as much as possible (especially older women

TABLE 2.—*Associations Between Etiological Agents, Parts of the Body, Symptoms and Appropriate Types of Medicine*

Agent	*Associated Parts of Body*	*Associated Symptoms*	*Appropriate Medicine*
Heat	**Belly; body in general**	**Belly hot; fever; "pressure" headaches**	**Purging (belly hot): harsh laxatives** **Cooling: toilet water; [illegible]; diuretic beverages**
Cold	"Mole" (fontanelle); "stomach" (chest); head; back; womb; eyes; ears; knee, etc.	Phlegm; discharge; arthritic pain	Cutting: laxatives; inhalers; cough syrups Drawing (pain): liniments
Bile	**Belly**	**Bellyache; belly boiling; belly running; biliousness; "feel bad" (nausea)**	**Bitter and cutting: bitter; laxatives; antacids**
Gas/Wind	Belly; knee; elbow; other joints	Traveling pain; discomfort; aching; stiffness; arthritic pain	Drawing: salves; liniments; toilet water
Imbalance of Blood	**Head ("pressure"—i.e., hypertension); skin; general health of internal organs**	**Bad blood; feel low; bad "circulation"; nerves; rash; bumps; weak blood; sweet blood (diabetes); giddiness ("pressure"); cancer**	**Building: tonics, bitter or [illegible] depending on [illegible]** **Cooling (pressure only): [illegible] water; inhalers; [illegible] ages** **Bitter and purging: [illegible] tives; bitter [illegible]; bitter antacids**
Germs	Genitals	Venereal diseases	Prescription drugs or antibiotics bought over-the-counter

and young children) and generally keep covered in situations where there is a chance of exposure.

- *Gas and wind* are associated with the joints, the back and the stomach. They are manifested in traveling pains: pains that go from the shoulder to the elbow, that travel from one part of the back to another or that cause recurrent stomachaches. The causes of a gas/wind imbalance within the body are less clear-cut than the causes of cold. Sometimes changes of temperature can bring one about, other times it is the result of overexertion, age or bad eating or drinking habits. Gas and wind are more associated with mature adults and the elderly than they are with children because "gas" pains are usually chronic.
- *Heat* is associated with fevers, stomachaches in which the stomach feels hot and painful to the touch and headaches in which the head feels hot and the eyes burn. Through its association with fevers and headaches, there is a link between "heat" and the balance of the blood. This is reflected in such concepts as that blood that is too hot contributes to "pressure headaches" (considered a sign of hypertension).
- *Bile,* in Jamaica, is believed to occur naturally in the stomach rather than the liver. Bile causes problems when it is imbalanced by pregnancy, bad food, excessive drinking or other disturbances. The symptoms of bile are restricted to the gastrointestinal region and include nauseousness, diarrhea, churning of the stomach and stomach pain. Bile tends to produce more painful, acute and disruptive stomach symptoms than either gas/wind or heat.
- *Imbalances of the blood* are the result of not eating the right foods, drinking too much, getting rundown, tension and circulatory problems. Signs of imbalance include "feeling low" and not having any energy; skin rashes, sores and acne; hot, "pressure headaches"; diabetes, and cancer.
- *Germs* are more frequently alluded to by middle class, more highly educated Jamaicans than by the lower class, but even so few medical problems are ascribed solely to this cause, although it may be mentioned as a contributing factor. Most infectious, communicable diseases are traced to one of the traditional causes of disease, even if a medical practitioner has identified a microbial origin. The reason venereal diseases may be so consistently linked with "germs" may be because of their clear symptomatology (in men), the unambiguous manner in which they are communicated and their responsiveness to biomedical treatment.

Concepts of Cure

Symptoms in Jamaican popular medical thought are identical with illness and disease; therefore, if there are none of the signs that are popularly considered to be symptoms of disease it is assumed that a person is well. When symptoms are present, they are the disease itself: that is, a skin lesion is not a secondary sign that a person has the disease called "sugar" (diabetes), the lesion is itself "sugar." By this reasoning the "sugar" is cured if the lesion goes away.

Medicines are administered in accordance with this identity between cause and effect. Their effectiveness is judged in relation to how rapidly and completely they alleviate symptoms and give "ease." The actions by which medicines are thought to work are: "bitterness," "cutting," "cooling," "scraping and building," "scratching," "purging or washing out" and "drawing out" (Table 2). As the terms imply, expulsion of disease-causing impurities is the primary mechanism by which bodily equilibrium is restored. Once the body has been cleansed, healing processes can begin.

The way in which a medicine is thought to eliminate an impurity corresponds for the most part to the appearance or internal sensation of a particular symptom: phlegm, or "cold," responds to "cutting" medicine because once it is cut it can flow or be released from the body; a pain that travels can be "drawn" from the body by massage.

Effects of Popular Concepts on Use of Drugs

Congruence with popular medical concepts is of critical importance for drugs. Medicines, whether OTC or prescription, are considered effective only if they "fit" the illness for which they are intended: if prescribed for "cold" illnesses they should be cutting; if for digestive problems, laxatives; if for the blood, bitter, and so forth. In other words, they should correspond as closely as possible to the associations outlined in Table 2. A medicine that does not meet these criteria is not believed to be effective unless it is supplemented with another that does.

The principle of congruence has a particularly strong impact on the use of prescription medicines because patients exercise no influence on their selection. If a prescription drug is not congruent with popular categories this will directly affect how, or whether, it is used. Problems physicians encounter in the treatment of hypertension are a good example of the impact of not being congruent on a drug's use: hypertension, or "pressure," is thought to be caused by worrying and incorrect circulation of the blood; therefore, it would respond well to "cooling" liquids, which both "cool" the blood and make the person who takes them feel physically cool. Prescribed medication for hypertension, however, is invariably in tablet form, and not only does not impart a cooling sensation but does not have any discernible physical effect. Thus there is no way to tell if it is "working." Because people do not feel any different after they take methyldopa (Aldomet) or other tablets for raised blood pressure, they tend to doubt their efficacy. Some stop taking them, especially if they produce unwanted, unexpected side effects, or change their pattern of taking them. Others continue taking the tablets, but to increase their effectiveness supplement them with cooling herbal teas or with commercial tonic waters or inhalers. The risk here

is that, when wrongly used, drugs to treat high blood pressure may be dangerous.

The therapeutic implications of the principle of congruence, as demonstrated by this example, are obvious: when prescribed medicines do not fit with popular categories of medical action, patients are liable to stop taking them because of concerns about their effectiveness. Some prescription drugs that do not fit into popular categories are saved from being completely discarded by their expense and prestige value. That is, because they are high status medicines that, if prescribed by a private physician, represent a significant financial investment, people are reluctant to stop taking them altogether. Instead they enhance their therapeutic action, as in the example of hypertension, with commercial (or sometimes herbal) medicines in which they have more confidence. This creates a certain harmony from the point of view of popular theory and ensures use of the prescribed medication, but it also puts the consumer at risk of adverse drug reactions and drug-drug interactions resulting from taking combinations of OTC and prescription drugs.

Compared to prescription drugs congruence is less problematic for OTC drugs. First, a variety of products are available, many of which have been tailored specifically to satisfy popular medical tastes. Second, these medicines are self-selected and customers can find out about their properties beforehand from other customers or the pharmacist and clerks. Many OTC tonics are popular precisely because they meet the requirements of a cutting medicine: being dark, bitter and laxative in effect. Antacids that seem especially effective at "cutting" gas and upset stomachs have gained a similar popularity. Any "stomach remedy" that also has laxative effects is bound to be a marketing success because of the importance the culture places on being able to "feel" medicine working and experience noxious wastes being passed from the body.

With OTC drugs there is more likely to be a problem of overuse or inappropriate use, because of apparent congruence with popular medical concepts, than of underuse. People often take these products for purposes other than those intended by the manufacturer because they seem to "fit" these other applications. Antacids are taken for arthritic pains because they "cut" gas, purgatives for abortions because they "cut" the womb, laxatives for colds and flu because they "cut" cold, inhalants for hypertension because they "cool" the head, bitter tonics for diabetes, boils and other sores because they "clean" the blood and restore its balance and antibiotics (bought over-the-counter) to prevent colds and "build" the body. Sometimes these reinterpretations, or extensions, of the uses of OTC medicines are relatively harmless from a medical standpoint but there is an unquestionable potential for medically dangerous results. These could arise if diseases, especially chronic conditions, are neglected by people who think they are treating them effectively; if powerful purgatives are overused in efforts to gain various secondary effects, or if antibiotics and other substances whose administration should be monitored are overused or misused. The following case illustrates some of the risks patients run from misuse of OTC drugs and failure to use prescribed medication.

Report of a Case

Mrs Green (as I will call her*), who is in her mid-60s and lives in a very remote rural settlement, had high blood pressure and diabetes, diagnosed by Dr Stewart, a physician employed at the government health center about ten miles from Mrs Green's community. Dr Stewart put Mrs Green on a restricted diet and also gave her some ointment to apply to her foot, which was painful and becoming leathery. After her visit to Dr Stewart, Mrs Green went to a "bush doctor" (traditional healer) who gave her an herbal treatment for diabetes. After drinking this infusion for a few weeks, Mrs Green went back to Dr Stewart and asked her to test her urine. Because the tea the bush doctor had prescribed resulted in a urine test showing normal sugar concentrations, Dr Stewart told Mrs Green that her test was "OK." Mrs Green took this as a sign that her diabetes was cured.

A few months later, because her foot problem had not improved, Mrs Green went to a private physician, Dr Bell, whose practice is near the health center. Dr Bell did not test her urine, and Mrs Green did not tell him about the earlier diagnosis of diabetes. Dr Bell gave Mrs Lewis a prescription for another type of ointment for her foot. Mrs Lewis told me she was satisfied with the new ointment because it seemed to be working—that is, clearing up the problems with her foot—and she could buy it off the shelf at the pharmacy (also ten miles away). Dr Bell also gave Mrs Green some tablets, to take "when necessary." Mrs Green was never sure what they were for, and since she was not told that she *had* to take them, she never did.

Comment

Mrs Green's case demonstrates the reliance on OTC medicines that can result from the combination of popular medical concepts with poor physician-patient communication. Her brief encounters with physicians cannot really be considered proper medical care, and yet for the poor they are all too often the norm. Mrs Green's initial visit to the health center was probably prompted by the problems she was having with her foot. Since her husband had lost the use of one leg (from diabetes), she probably had some awareness of the possible consequences of neglecting itchy, scaling skin, but it is not clear that she herself knew of the connection between her husband's disability and his diabetic condition. Nor is it clear that she ever understood the connection between her own overt symptoms and the diagnosis of diabetes. It is widely known that there is an herbal tea that changes the results of urine tests for diabetic persons and because symptoms are

*All names are changed in this example.

identified with disease this means that this tea is seen as "curing" diabetes. When Dr Stewart said that the urine test was "OK," this confirmed for Mrs Green that she had been cured. Apparently the physician had not adequately explained to her that diabetes is chronic, or she did not understand or accept the explanation. Dr Stewart must have assumed that Mrs Green's urinary changes were the result of her adherence to the restricted diet, for she seems to have been unaware that there is a tea that gives such results. Given the prevalence of diabetes among older Jamaicans, Dr Bell, the second physician, should have had Mrs Green's urine tested when she came in for her foot ailment but he did not; and since she had formerly been at the health center, he did not have access to her chart. Mrs Green, "cured," not connecting her foot lesions with a "blood" disease and perhaps also testing Dr Bell's diagnostic skills, offered no information other than her obvious symptomatology. It is unclear what the tablets Dr Bell prescribed were for, possibly hypertension, but since she did not understand how they related to her symptoms, she never took them. She was satisfied with the ointment prescribed by the second physician because it was easy to get, and was alleviating what she felt, at that time, to be her major medical problem.

Improving Use of Drugs

It is evident from the case above and earlier discussion that in Jamaica popular medical beliefs play a decisive role in both adherence to prescribed drug regimens and self-medication with drugs. The pattern that is apparent is that if people cannot understand drugs according to the logic of popular principles, then they either reject them or modify them in some way to make them conform to expectations. Harwood reports a very similar pattern among Puerto Ricans in New York City, where conflicts between traditional classifications of medicines and physicians' recommendations are resolved either by administering additional substances that effectively neutralize the perceived adverse effects of the prescribed medication, or by neglecting the physician's recommendations entirely.[9] Logan, describing the acceptance of modern medicine by Guatemalan peasants, reports the same pattern of adaptation. He observes that "patient behavior is predictable as long as, and to the degree with which, the appropriate ['hot/cold'] qualities are known for both the patient's illness and the prescribed medicine."[10]

Studies conducted in Jamaica indicate that inadequate physician-patient communication is an important contributing factor to poor adherence to prescribed drug regimens and misuse of prescribed drugs. One study of 80 patients from two public hospitals in Kingston found that 74% of the sample did not know the effects their prescribed medicine would have. Few had been given verbal instructions on how to take their medicine and most, when questioned, were found to be administering them improperly in some way.[11] In another study, of adult diabetic patients at an outpatient clinic, 77 patients (75% of the total sample of 103) said that at the time of diagnosis the physician had told them they "had sugar," but had given them no other explanation of the nature of their problem. Some 9% said that the physician had told them nothing about diabetes at all. Among the severely diabetic patients there was a significant difference in the control of the disease (through diet and use of medication) between those who said they were given a full explanation of the disease initially and those who said they were told only that they had sugar.[12]

Several factors contribute to poor physician-patient communication in Jamaican health centers and public hospitals. The Bennett and White study found that physicians were deliberately withholding information, that patients did not understand the little information they had been given and that patients were actually not being told about correct medication use (dosage instructions are always written on drug containers but many patients cannot read).[11] The shortage of physicians and consequent overcrowding of patients at most facilities, along with behavioral expectations related to social class which reinforce authoritative roles for physicians and deferential roles for patients, also contribute to the communication problem.

In Jamaica low levels of formal education and a virtual absence of health and consumer education reinforce public ignorance and misunderstanding of basic anatomy and such fundamental concepts as contagion and infection. A similar situation obtains in many low-income and minority communities in the United States, as described earlier in the paper. In order to improve the therapeutic success of prescription drug use and the quality of self-medication, whether in Jamaica or in communities in the United States, changes initiated by providers appear to be the necessary first step. The physician-patient relationship has been identified as a critical source of many problems, but it does not have to be the sole focus in intended changes. Rather a beginning would be better communication of drug information by all appropriate health care personnel, including pharmacists and nurses as well as physicians. This information would include standardized descriptions of how drugs work, what tablets do when they are ingested (for example, some Jamaicans think that they simply accumulate in the stomach) and how to interpret such instructions as "two," "three" and "four times a day," "before meals" and "after meals." This suggestion could usefully be implemented both in this country and in developing countries where popular drug use is increasing. It is not as important to challenge popular medical concepts, or even to question them, as to supplement them with additional information of an objective nature from an authoritative and respected source.

In situations where popular classification of foods or medicines may cause conflict, a somewhat different approach is necessary. First the physician, nurse or

pharmacist who is giving advice must determine if the patient's views undermine the recommended treatment regimen. Then an approach which is satisfactory to both the patient and the practitioner must be agreed upon.[9] The probability of changing a patient's concepts of disease etiology and appropriate therapy is extremely small; nevertheless these concepts can be worked with in the name of improved communication.

When popular concepts are a people's main source of medical knowledge, whether because of language and literacy barriers, poor physician-patient communication or insufficient efforts from sources other than physicians to provide appropriate supplemental advice, self-medication is likely to be favored and adherence to physicians' recommendations to be minimal. The crucial issue to be dealt with is not "noncompliance" per se, but the risks that uninformed use of over-the-counter and prescription drugs and neglect of recommended therapy can pose for unsuspecting adults and children.

REFERENCES

1. Kleinman A: Patients and Healers in the Context of Culture. Berkeley, University of California Press, 1980

2. Jamaica National Planning Agency: Five Year Development Plan 1978-82, Main Document. Kingston, Jamaica, The Government Printer, 1979

3. Jamaica Department of Statistics: Pocketbook of Statistics—Jamaica 1980. Kingston, Jamaica, The Government Printer, 1981

4. Dunn RS: Sugar and Slaves—The Rise of the Planter Class in the English West Indies, 1624-1713. New York, WW Norton, 1973

5. Inter-American Development Bank: Annual Report. Washington, DC, 1980

6. Jamaica National Planning Agency: Economic and Social Survey—Jamaica (January-June 1981). Kingston, Jamaica, The Government Printer, 1981

7. Jamaica National Planning Agency: Economic Survey. Kingston, Jamaica, The Government Printer, 1972

8. Florey CduV, McDonald H, McDonald J, et al: The prevalence of diabetes in a rural population of Jamaican adults. Int J Epidemiol 1972; 2:157-166

9. Harwood A: The hot-cold theory of disease—Implications for treatment of Puerto Rican patients. JAMA 1971 May 17; 216:1153-1158

10. Logan MH: Humoral medicine in Guatemala and peasant acceptance of modern medicine, chap 54, *In* Landy D (Ed): Culture, Disease, and Healing—Studies in Medical Anthropology. New York, Macmillan, 1977, pp 487-495

11. Bennett VM, White K: Causes and Effects of Hospital Outpatient Drug Misuse. Kingston, Jamaica, College of Arts, Science and Technology, 1974

12. Alleyne SI, Morrison EYStA, Richards RR: Some social factors related to control of diabetes mellitus in adult Jamaican patients. Diabetes Care 1979 Sep-Oct; 2:401-408